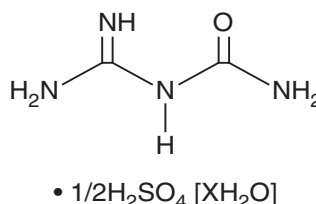


PRODUCT INFORMATION

N-Guanylurea (hemisulfate hydrate)

Item No. 45231

CAS Registry No.: 207300-86-5
Formal Name: N-(aminoiminomethyl)-urea hemisulfate, hydrate
Synonyms: GU, GUA
MF: $C_2H_6N_4O \cdot 1/2H_2SO_4 [XH_2O]$
FW: 302.3
Purity: $\geq 98\%$
Supplied as: A solid
Storage: $-20^\circ C$
Stability: ≥ 4 years



Information represents the product specifications. Batch specific analytical results are provided on each certificate of analysis.

Laboratory Procedures

N-Guanylurea (hemisulfate hydrate) is supplied as a solid. Aqueous solutions of N-guanylurea (hemisulfate hydrate) can be prepared by directly dissolving the solid in aqueous buffers. N-Guanylurea (hemisulfate hydrate) is slightly soluble (0.1-1 mg/ml) in PBS (pH 7.2). We do not recommend storing the aqueous solution for more than one day.

Description

N-Guanylurea is a transformation product of metformin (Item No.13118) that has been found in sewage treatment plant influent and effluent.^{1,2} It induces developmental abnormalities ($EC_{50} = 18.5 \mu g/L$) and mortality ($LC_{50} = 38.5 \mu M/L$) in zebrafish embryos.³ Chronic exposure to N-guanylurea (25, 50, and 200 $\mu g/L$) induces anxiety-like behavior and increases the production of reactive oxygen species (ROS) in adult zebrafish.⁴ N-Guanylurea is also a synthetic intermediate that has been used in the synthesis of β -secretase 1 (BACE1) and glycogen synthase kinase 3 β (GSK-3 β) inhibitors.⁵

References

1. Trautwein, C. and Kümmerer, K. Incomplete aerobic degradation of the antidiabetic drug Metformin and identification of the bacterial dead-end transformation product Guanylurea. *Chemosphere* **85**(5), 765-773 (2011).
2. Tisler, S. and Zwiener, C. Formation and occurrence of transformation products of metformin in wastewater and surface water. *Sci. Total Environ.* **628-629**, 1121-1129 (2018).
3. Elizalde-Velázquez, G. A., Gómez-Oliván, L. M., Islas-Flores, H., et al. Oxidative stress as a potential mechanism by which guanylurea disrupts the embryogenesis of Danio rerio. *Sci. Total Environ.* **799:149432**, (2021).
4. Elizalde-Velázquez, G. A., Gómez-Oliván, L. M., Rosales-Pérez, K. E., et al. Chronic exposure to environmentally relevant concentrations of guanylurea induces neurotoxicity of Danio rerio adults. *Sci. Total Environ.* **819:153095**, (2022).
5. Prati, F., De Simone, A., Bisignano, P., et al. Multitarget drug discovery for Alzheimer's disease: Triazinones as BACE-1 and GSK-3 β inhibitors. *Angew. Chem. Int. Ed. Engl.* **54**(5), 1578-1582 (2015).

WARNING

THIS PRODUCT IS FOR RESEARCH ONLY - NOT FOR HUMAN OR VETERINARY DIAGNOSTIC OR THERAPEUTIC USE.

SAFETY DATA

This material should be considered hazardous until further information becomes available. Do not ingest, inhale, get in eyes, on skin, or on clothing. Wash thoroughly after handling. Before use, the user must review the complete Safety Data Sheet, which has been sent via email to your institution.

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CAYMAN CHEMICAL

1180 EAST ELLSWORTH RD
 ANN ARBOR, MI 48108 · USA

PHONE: [800] 364-9897
 [734] 971-3335

FAX: [734] 971-3640

CUSTSERV@CAYMANCHEM.COM
 WWW.CAYMANCHEM.COM